



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,288	09/16/2003	Masafumi Kubota	60188-652	9822
20277	7590	10/12/2005	EXAMINER	
MCDERMOTT WILL & EMERY LLP			DANG, PHUC T	
600 13TH STREET, N.W.			ART UNIT	
WASHINGTON, DC 20005-3096			PAPER NUMBER	
			2818	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,288

Applicant(s)

KUBOTA ET AL.

Examiner

PHUC T DANG

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on August 11, 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-44 is/are allowed.
- 6) ☒ Claim(s) 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on September 16, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 091405.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2818

DETAILED ACTION

Response to Arguments

1. Applicant's argument filed on August 11, 2005 with respect to claims 13-44 have been considered but are moot in view of the new ground(s) of rejection.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on September 14, 2005.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2818

4. Claims 13-20 are rejected under 35 U.S.C. 102 (e) as being anticipated by Paton et al. (U.S. Patent No. 6,682,973 B1).

Regarding claim 13, Paton et al. discloses a method for fabricating a semiconductor device having a high-K dielectric layer over a silicon substrate comprising:

a) forming an insulating film (26, Fig. 2) comprising silicon on a substrate (16, Fig. 2);

b) forming a high dielectric insulating film (28, Fig. 3) on the insulating film (26, Fig. 3);

and

c) irradiating a light onto the substrate (col. 8, lines 8-12) having the high dielectric insulating film (28, Fig. 3) so as to reduce a crystal defect of the high dielectric insulating film (28, Fig. 3) (col. 8, lines 41-45).

Regarding claim 14, Paton et al. discloses the insulating film contains nitrogen (Abstract).

Regarding claims 15 and 18, Paton et al. discloses a step of irradiating also has an excitation energy, then, it will obvious result a heat to a substrate about 100 to 500 degrees during step c).

Regarding claim 16, Paton et al. discloses the light has a wavelength of 0.4 μm or less (col. 8, lines 49-50).

Regarding claim 17, Paton et al. discloses the high dielectric insulating film contains at least one of hafnium, zirconium, lanthanum, cerium, praseodymium, neodymium, yttrium and aluminum (col. 10, lines 55-65).

Regarding claim 19, Paton et al. discloses a partial pressure of an oxygen gas or an oxygen compound gas is controlled during step c) (col. 9, lines 18-20).

Art Unit: 2818

Regarding claim 20, Paton et al. discloses the atmosphere used in step c) includes a nitrogen gas or an inert gas (col. 9, lines 34-35).

Allowable Subject Matter

5. Claims 21-44 would be allowed.

The following is a statement of reason for the indication of allowable subject matter:

Claims 21-44 are considered allowable since the prior art of record and the considered pertinent to the applicant's disclosure does not teach or suggest the claimed invention having a step of irradiating a light onto the substrate having the high dielectric insulating film and the source and drain region; so as to reduce a crystal defect of the high dielectric insulating film as cited in claim 21 and a step of removing a gate insulating film and a gate electrode by removing a part of the high dielectric insulating film and the conductive film after step c) as cited in claim 30 and a step of irradiating light on the high dielectric insulating film so as to reduce a crystal defect as cited in claim 38.

Conclusion

6. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

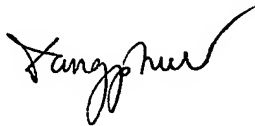
Art Unit: 2818

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and After Final communications.

9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

PD

A handwritten signature in black ink, appearing to read 'Phuc T. Dang', with a stylized flourish at the end.

Primary Examiner

Art Unit 2818